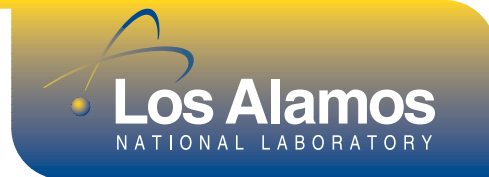


The Plutonium Facility



The Plutonium Facility at Technical Area 55 is located approximately one mile southeast of the central Technical Area 3 and occupies about four acres. The main complex has five connected buildings for administration, technical and office support, warehousing and the 150,000-square-foot main plutonium processing building, known as PF-4. A double security fence surrounds the Plutonium Facility. An access center and other office buildings are located outside the secured area. More than 1,000 University of California and subcontractor employees work at TA-55.

PF-4 is the only fully operational, full-capability plutonium facility in the nation. It supports pit manufacturing, surveillance and special plutonium recovery. To meet the varied needs of research, development and plutonium processing programs at the Laboratory, TA-55 provides chemical and metallurgical processes for recovering, purifying and converting plutonium and other actinides into many compounds and forms. Additional capabilities include the means to safely and securely ship, receive, handle and store nuclear materials as well as manage the wastes and residues produced by TA-55 operations.

Core capabilities include basic and applied research in the chemistry of plutonium and other actinides for the study of nuclear materials and a strong technology base in nuclear materials separation, processing and recovery. The facility also supports research in plutonium metallurgy; actinide surface studies; plutonium-component fabrication technologies, including pit manufacturing and surveillance; and actinide ceramics for heat sources and mixed-oxide fuels.

Core competencies are maintained for every type of plutonium-processing activity along with the ability to convert recovered material into plutonium metal. In addition, analytical capabilities, techniques for materials control and accountability and a substantial research and development base are available to support these core capabilities.

A separate portion of the facility is dedicated to fabricating ceramic-based reactor fuels and to processing plutonium-238, used to make radioisotope heat sources and radioisotope thermoelectric generators (RTGs). These heat sources and RTGs have provided heat to maintain instrument operating temperatures and electrical power for every U.S.

deep space mission, including Voyager, Pioneer, Galileo and Cassini.

TA-55 houses a sophisticated system for nuclear materials accounting, management and modeling; a measurement support operation; and a nondestructive assay laboratory. A nuclear materials packaging and transfer operation receives nuclear material at the facility and transfers shipments from the facility. Safe nuclear materials storage is also provided. All nuclear materials in process or stored onsite are monitored to ensure that material balances are properly maintained and inventoried on a real-time basis.

Construction began in 1973; and TA-55 has operated continuously without long-term interruption since April 1978.

Among recent technical achievements made possible by the technology and people working at TA-55:

- Successful manufacturing of the Qual-1 pit, the first nuclear weapons core produced in 14 years that meets specifications for use in the U.S. stockpile, which required six years of effort by more than 700 people.
- The unexpected discovery of superconductivity in a compound containing plutonium, cobalt and gallium, which drew attention from the international condensed-matter physics community and improved the understanding of elemental plutonium's electronic structure.
- Casting of a plutonium alloy expected to age at a rate 16 times faster than normal, producing a material equivalent to 60-year-old plutonium in just four years. Resulting data will offer clues to what is happening to the plutonium in aging U.S. nuclear weapons.



Security at Technical Area 55, home of the Plutonium Facility, is a primary focus.



Los Alamos National Laboratory is operated by the University of California for the U.S. Department of Energy's National Nuclear Security Administration